10/19/79

ANALYSIS OF THE SAMPLING PROBLEM - A.L. TAYLOR SITE, BULLITT COUNTY

AVAILABLE DATA

The data base for the contents of the A.L. Taylor site is less than well developed since numerous samples were taken and analyzed, but accurate-logging of the sample sites (beyond the influent and effluent from the temporary treatment system) was not accomplished.

The available data ~~is~~ are of two kinds. Data developed as a spot check system to identify the relative hazard levels at the site by U.S. EPA is available tabulated. This data represents surface measured contaminants and is not a drum contents analysis. The second level of available data consists of inferences about drum contents based on the businesses of the known manufacturers whose drums were disposed of on the site. The first data base merely confirms the inferences of the second with somewhat greater specificity as to actual known organic and inorganic substances leaching from the site. Further additions to the list of potential site contents is possible based on my numerous personal observations of the site contents. The listing below of site contents with the source of known information and its confirmation breaks out the relative types of materials by use and industrial class.

ketones — primarily used in paint and coatings manufacture		
acetone	EPA analysis	confirmation based on the
methyl ethyl ketone	EPA analysis	basis of the extensive paint-
methyl isobutyl ketone	EPA analysis	and coating industry in
heptanone		Louisville, Kentucky
alkyl benzenes (& benzene)		
tolune	EPA analysis	confirmation based on the
benzene	EPA analysis	basis of the extensive paint
xylenes (para & ortho)	EPA analysis	and coating industry in Louisville, Kentucky
aliphatic and aromatic alcohols		
2- butanol	EPA analysis	confirmation based on the
3-methyl 2-pentanol	EPA analysis	basis of the extensive paint
5-methyl 2-hexanol	EPA analysis	and coating industry in Louisville, Kentucky
carboxylic and dicarboxylic acids (and esters thereof)		
ethyl hexanoic acid	EPA analysis	confirmation based on the
methyl ester acid	EPA analysis	basis of the extensive paint
methyl pentanoic acid	EPA analysis	and coating industry in
diethyl phthalate	EPA analysis	Louisville, Kentucky
propanoic acid	EPA analysis	
trash & oily rags & filters	OBSERVATION	

The chemicals listed in each class are representative of the group and each listing is not inclusive since close to two hundred distinct organic compounds have been identified (most, however, are in the ppb concentration ranges). With minor exceptions, all members of a group are amendable to similar treatment, destruction, or disposal methods.

Note that one major assumption is made in quantum leap between knowledge of the constituents of effluent from the site and knowing the contents of the drums on site. It is inferred that those drums which were known to have been dumped into pits dug on site are representative of the contents of the remaining drums on the site. This assumption is probably correct qualitatively based on my personal observations of the drum contents.

ANALYTICAL AND HANDLING METHODS BY CLASS

Empty Drums - The empty drums on site are not in the same class of materials as empty drums known to have previously held non-hazardous waste or materials per se. Short of testing the remaining sludges and coatings there is no guarantee that those materials would not create a potential environmental hazard by landfilling in a site not specifically operated with leachate production and control equipment installed. Disposal at a steel or iron smelting facility would be more appropriate since volatiles would be consumed in the furnace and the potential for environmental contamination would be nil. ~~Eight to ten~~ thousand crushed drums are in this catagory. ~~A listing of nearby facilities is attached~~.

Solids - Solids represent a more difficult analytical problem for economical analytical approaches.

The following approach is recommended:

1. Inventory the site with each of the generators either in small groups or as a whole and identify those drums which contain identical or similar materials.

2. Screen the unidentified or classified drums for solid waste which does not require analytical identification (e.g. oil filters, oily rags, trash and ordinary solid waste).

3. Perform the necessary screenings of the grouped drums from 1. above.

4. Consolidate all remaining drums and attempt to find additional similarity groupings.

5. Perform analytical workups on batched solids (5-10 compatible solids per sample).

Three (3) potential disposal methods are available for solids identified by analytical technique:

a. Recycling where possible (minor solution)

b. Landfilling in-state (major solution with potential political problems)

c. Landfilling out-of-state in a secure landfill (major solutions)

~~A list of nearby facilities is attached.~~

Liquids - Liquids represent a more complex problem for ultimate disposal but the analytical procedures are significantly simplified. On-site liquids may be divided into two classes by physical inspection - those with suspended or settled solids and those which are homogeneous.

Procedures

PCB Screening - PCB analytical techniques are sensitive to the ppb range which would allow 1000 fold dilution of samples and still yield results capable of detecting concentration of 50 ppm or less. 50 ppm is the lower limit for federal PCB disposal regulations.

Separate homogeneous liquids from those with suspended solids or sludges.

a. Batch 10 liquids/sludges and analyze for heavy metals. Maximum batching limited by heavy metal analytical technique sensitivities.

b. Consolidate batches of liquids from the above analytical process into batches of 100 liquids/sludges (or greater as analytical technique permits) and screen for pesticides or EPA priority pollutant list contaminants.

c. Consider decanting liquids from sludges and solids on an ad hoc basis from analytical results and physical inspections.

Homogeneous liquids should be tested for the EPA priority pollutant list, but heavy metal screening may be done on larger batches since one would not ordinarily expect to find any.

a. Batch 100 liquid drum samples for all screening.

b. Based on prelimanary composition estimates, the heating value of liquids determined not to contain metals or greater than 1-2% solids may be included in incineration disposal procedures. Halogen content must also be determined.

POTENTIAL SOLUTIONS

1. Incineration/Thermal Destruction

   Requirements

   a. % solids

   b. Heat Value estimated 10,000 BTU/lb.

   c. Halogens - function of incineration design - up to 60%

2. Solvent Reclamation

~~A list of nearby facilities is attached.~~

C. Frank Harscher III
Secretary

JULIAN M. CARROLL
Governor

COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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Dept. for Natural Resources & Environmental Protection Commissioner's Office
Bureau of Environmental Protection

M E M O R A N D U M

October 23, 1979

TO: Jack Wilson, Acting Commissioner
Bureau of Environmental Protection

FROM: Roger Blair, Director RB/jw
Division of Hazardous Material and Waste Management

SUBJECT: Site Plan for the Valley of the Drums

Enclosed is the site plan for the Valley of the Drums. Also, we are enclosing a contour map of this area as well as a report from the Division of Water Quality which depicts the monitoring points.

RB/jw

cc: Hazardous Waste Task Force Members